

BIOLOGY OF HOUBARA BUSTARD (*CHLAMYDOTIS UNDULATA MACQUEENI*) WITH REFERENCE TO WESTERN BALUCHISTAN¹

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(With two text-figures)

INTRODUCTION

The Asian race of Houbara Bustard (*Chlamydotis undulata macqueeni*) mainly breeds in Kirgiz steppes of USSR, as far as Mongolia and migrates in winter to Iran, Afghanistan, Pakistan and part of India (Collar 1979). Pakistan receives one of the largest wintering populations of this bird and is found in high densities of about four birds per ten square miles (Goriup 1981). The vast desolate steppes of western Baluchistan, spread over thousands of square kilometre is said to receive a reasonable proportion of the total population of this bird, wintering in Pakistan.

There is a general feeling that the wintering population of Houbara is declining at an alarming rate and that there is an eminent need for conservation (Goriup 1980). However, whereas effective conservation needs an elaborate study of the biology and distribution of the wintering population of the bird, very few studies are presently available (Mirza 1971; Sorahio 1981, 1982), and only certain guess estimates exist for Baluchistan. These facts and the presence of a sizeable population alongwith the existence of certain optimistic speculations regarding the residential nature of Houbara in Baluchistan prompted us to collect first hand

information regarding the population of the bird wintering in the area. This paper attempts at presenting a preliminary report regarding the biology and ecology of the bird with particular reference to Baluchistan.

METHODS AND MATERIAL

An extensive tour of western Baluchistan was undertaken in April, 1982, with the active collaboration of the Baluchistan Forest Department in order to collect first hand information on the biology and ecology of Houbara in various wintering grounds of western Baluchistan and to ascertain whether the birds breed in the area. For this purpose Dasht area of Mustung; Dak plains spread along the border area around Inam Bostan; Zangi Nawer area towards northwest of Nushki; the vast plains along the road from Nushki to Sathiar, the vast plains in remote areas of Chagai and the plains around Yakmuch, falling in Chagai district were visited. Similarly the vast plains of Gwash, Padak, Jalawar, Hurmagai and Washuk of Kharan district were also toured. Local people, forest staff and watchers and reputed shikaris were contacted and were questioned regarding feeding habits, population dynamics, migration patterns and routes, local techniques pertaining to capturing the live bird, hunting bag data of the hunters from Middle East and Gulf States, and evidences of breeding activities in the area. While analysing the data, due importance was given to the status of the informer

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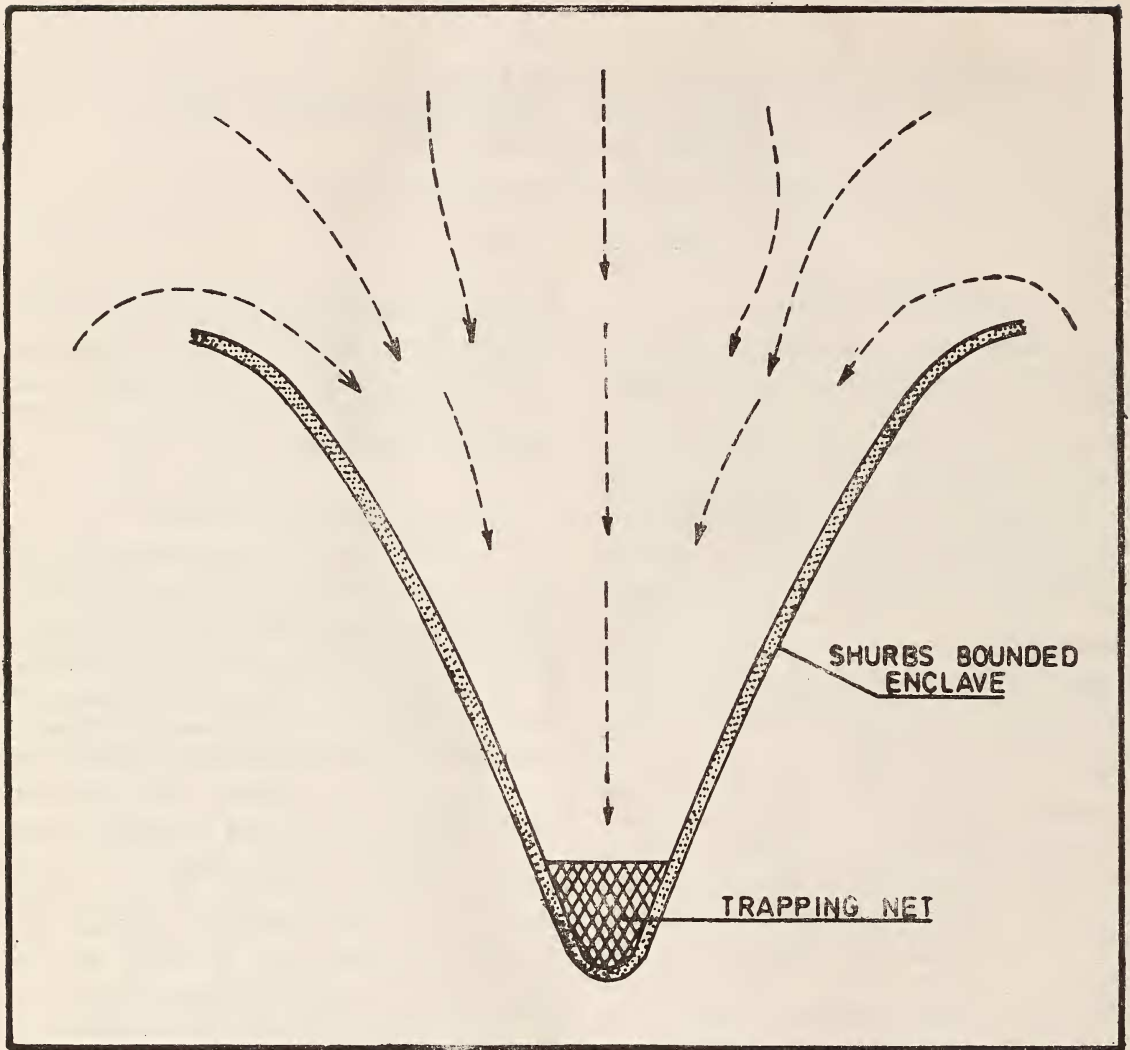


Fig. 1. A line sketch of the enclosure, used by local people of the western Baluchistan for live trapping of Houbara.

and data lacking a consensus of opinion were excluded from the final analysis. The topography and the distribution of vegetation of the wintering grounds were examined by us.

RESULTS AND DISCUSSIONS

Habit: Houbara is basically a very shy bird

and avoids human interference. However, it is approachable within reasonable shooting distance on camel back or from behind a herd of slowly moving camels. This finding is in conformity with similar observations reported by Ali and Ripley (1969). It is generally believed that the bird is not scared of slow mov-

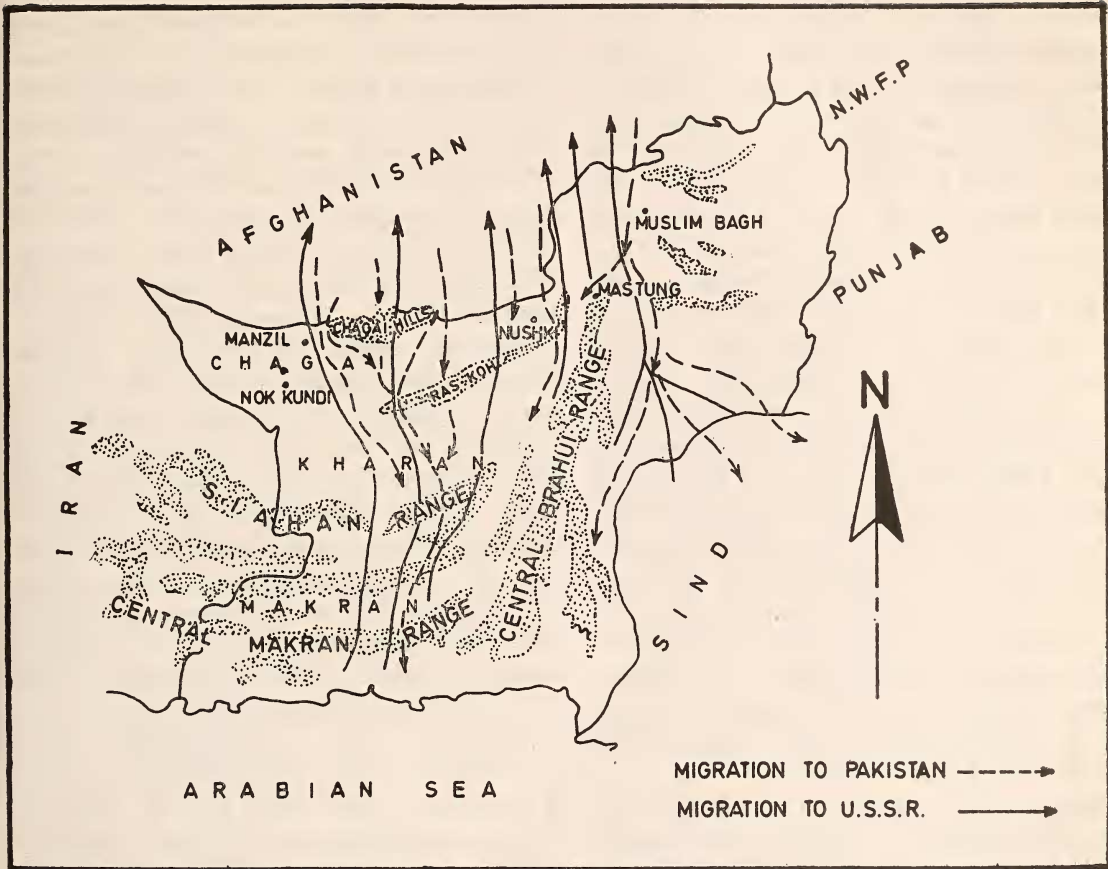


Fig. 2. A line sketch of Baluchistan depicting the probable migration routes of Houbara.

ing larger objects and is said to take little notice of a gradually approaching man, camouflaged in a haphazard tented structure. The bird can be captured alive by forming a special triangular trapping enclosure. The blind and narrow end is provided with a suitable trapping net. The boundaries of the net and the further extensions are bounded by locally available shrubs, specially by *Haloxylon ammodendron*, locally known as Tagaz (Fig. 1). The birds are then gradually driven towards the open and wider end of this enclosure by riding on a camel back

and are then further pushed deep into the net, where the bird gets trapped.

Houbara is solitary in nature and occurs in a dispersed population in accordance with the availability of protection and food, except at the time of migration. However, it appears that the bird probably does not exhibit territorial behaviour and some 4-5 birds can be seen together under good conditions of food and shelter. The call of the bird has never been heard. This confirms the earlier report of Ali and Ripley (1969).

Habitat and Distribution in Baluchistan:

Houbara is very widely distributed in Western Baluchistan, which is an extensive cup shaped valley surrounded by high mountain ranges on three sides leaving a northern open area which extends deep into Afghanistan (Fig. 2). The eastern side of the valley is traversed by the Central Brahui Range while the southern and western sides are partially bounded by two parallel ranges, i.e. the Siahan Range and the Central Makran Range. The western side has Kuh-i-Birg and Kuh-i-Tuftan, which extend deep into Iran with an northwestern orientation. The western range is further supported by an extremely arid tract from west of Nok Kundi. Within this valley, there are two isolated ranges of mountains with an east-west orientation, i.e. Chagai Hills in the north and Raskoh in the central area. Topographically, most part of this valley is an extensive plain having sandy soil sometimes with loose stones. Generally the plains gradually slope towards the mountain ranges. The vegetation of the area includes certain xerophytic shrubs, various annual herbs and scattered grasses (Table 1).

During winter, the Houbara is widely distributed, preferably in open plain steppes, having sandy or loose stony background with small shrubs, which offer sufficient protection and camouflage from predators, especially man, and through which the bird can see from a long distance an approaching predator. It generally avoids hilly terrain though it inhabits the uneven plains in the vicinity of a hill range, having dried water courses, which provide shelter from sun and human predation. It lives in comparatively arid uncultivated areas, away from human populations, without caring for water. The bird has never been seen in the vicinity of water bodies or while drinking water. It is expected that the bird mainly depends upon the metabolic water for the purpose of its water

requirements. Further studies on the adaptations of the bird to the arid conditions could yield interesting information. The vast plains of Baluchistan provide ideal wintering grounds for the bird, having a sparsely distributed human population, sparse but sufficient amount of vegetation for feeding activities and a camouflaging background of sandy buff coloration of the soil. All these features are in conformity with similar reports regarding Punjab and Sind (Ali and Ripley 1969, Sorahio 1981, 1982).

From the initial studies it seems that the Plains around Kharan are rich with the wintering population of Houbara, followed by Yakmuch and Chagai plains. The birds are present abundantly in Dak, Zangi Nower and Dasht area in October but their population decreases in the area by December, and in the later period these areas have a scanty population. Further detailed studies are still needed about the population levels of the different areas, to prepare reliable concentration maps of the wintering population of the bird.

Migration: The probable migration routes for Houbara are presented in Fig. 2. A look at the figure would reveal that the migration routes in Baluchistan are very much dispersed. This is in conformity with an earlier guess (Goriup 1980). The Houbara exhibits a north-south migration from the various adjacent areas of Afghanistan right from Muslimbagh to the western side of Chagai upto Manzil. The first batch of the migrating birds is said to enter Baluchistan in late September or early October, depending upon the conditions of temperature. It first reaches the areas located in vicinity of Pak-Afghan border, i.e. Muslimbagh, Dak plains (Inam Bostan), Zangi Nower (northwest of Nushki) and whole of the Chagai plains. They stay there, consuming the available food and gradually move southwards to Dasht plains of Mustang, Kharan and Yakmuch area. Some

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TABLE 1

A COMPARATIVE STATEMENT OF THE TOPOGRAPHY, BACKGROUND SOIL, VEGETATION AND APPROXIMATE PERIOD OF STAY OF HOUBARA BUSTARD IN THE CERTAIN LOCALITIES OF WESTERN BALUCHISTAN

Sl. No.	Locality	Topography	Background Soil	Vegetation	Approximate period of stay of Houbara
1.	Dasht plains (Mustung valley).	Large open valley in Central Brahui Range, Sandy loam, and sand dunes with slopes.	Clay-sand, mixed with stones.	1. <i>Haloxylon ammodendron</i> 2. <i>Malcolmia africana</i> 3. <i>Atriplex</i> sp. 4. <i>Polygonum afghanicum</i> 5. <i>Heliotropium</i> sp. 6. <i>Arnebia</i> sp.	November-March.
2.	Dak plains (North east of Nushki)	Vast plains, having sparsely distributed sand dunes.	Sandy.	1. <i>Calligonum comosum</i> 2. <i>Koeleria phleoides</i> 3. <i>Malcolmia africana</i> 4. <i>Haloxylon ammodendron</i> 5. <i>Ephedra</i> sp. 6. <i>Atriplex dimorphostegia</i> 7. <i>Polygonum afghanicum</i> 8. <i>Panicum</i> sp.	October-November.
3.	Zangi Nawar plains (N. W. of Nushki)	Vast sloping plains, bounded by small hill tracts. Salt water lake surrounded by sand dunes.	Sandy.	1. <i>Calligonum comosum</i> 2. <i>Salsola arbuscula</i> 3. <i>Haloxylon ammodendron</i>	October-December.
4.	Chagai plains.	Large sloping plains, extending from the northern Chagai Hills, Traversed by hilly tracts of varying heights and water Channels.	Black loose stony with sand.	1. <i>Artemisia</i> sp. 2. <i>Calligonum comosum</i> 3. <i>Haloxylon ammodendron</i>	November-March.
5.	Yakmuch plains (Chagai district)	Vast plains, extending towards northern side of Raskoh and gradually extend deep upto Chagai Hills.	Loose sandy with some clay and stones.	1. <i>Calligonum comosum</i> 2. <i>Haloxylon ammodendron</i> 3. <i>Tribulus</i> sp. 4. <i>Erodium</i> sp. 5. <i>Rhazya stricta</i> 6. <i>Holosteum umbellatum</i>	November-March.
6.	Plains of Gwask, Padak, Jalawar, Hermagai and Washuk (Kharan district).	Vast plains between Raskoh and Siahan Range.	Loose sandy with some clay and stone.	1. <i>Calligonum comosum</i> 2. <i>Haloxylon</i> sp. 3. <i>Malcolmia africana</i> 4. <i>Atriplex</i> sp. 5. <i>Tribulus</i> sp.	December-March.

of the Kharan and Yakmuch populations may further move southwards to the coastal areas of Makran. The Dasht population may move southwards and thence finally going to Sind. The bird is said to follow almost the same routes, while migrating back to their residential areas in USSR, in March. Ringing data is needed to confirm these findings. There is very little evidence in favour of the immigration of Houbara into Baluchistan, from adjacent areas of Iran. In this regard our findings differ from an earlier report (Anon. 1972), which predicts that the major migrating population enter Makran, Kharan and Chagai districts from Iran, which bifurcate at Mach so that one group move towards Sind, while the other towards northern Baluchistan. However, possibilities for such a migration directly to the southern coastal area cannot be completely ruled out.

Houbara is said to enter Baluchistan in groups of 10-15 birds, having a slower southward movement. They usually rest after every 1-2 miles, consuming the available food and gradually disperse in the area alongwith their southward movement. The bird migrates during night, spending the day in various hideouts. The arrival of the Houbara in the northern areas of Baluchistan seems to be well coordinated and synchronized, as it is usually believed that one could see many birds in Dak and Chagai plains on one fine morning of the September/ early October, whereas there was hardly any in the previous evening. However, birds keep arriving for the next 15-20 days. It seems that the further southward movement of the bird is mainly in response to the availability of food and in search for better and unutilized feeding grounds.

The migration of birds, back to their residential areas in USSR, is said to be in larger groups of 20-30 birds. During this migration, the bird is said to take much longer stretches

of flight and generally passes over the various areas falling in their route without stopping.

Food and Feeding Habit: Houbara is omnivorous and nocturnal in habit and is said to consume whatever is available. Thus the food of the bird varies with type of the vegetation in the area and the season. It is said to depend upon the seeds, and the young shoots of *Calligonum comosum* (Phog), *Koeleria phleoides* (Gayab), *Malcolmia africana* (Chammar), *Haloxylon ammodendron* (Tagaz), *Ephedra* sp. (Gomazg), *Salsola arbuscula* (Narrunk) and *Polygonum afghanicum*, in Dak, Zangi Nower and Kharan area. The Houbara prefers the dry seeds of *Polygonum afghanicum*, *Calligonum comosum*, *Haloxylon ammodendron* and *Panicum* sp. in these areas. In Chagai and Yakmuch plains the bird consumes *Tribulus terrestris* (Sarang), *Tribulus alatus* (Korka), *Erodium* sp., *Plantago ciliata*, *Rhazya stricta*, and *Holosteum umbellatum*. Though certain detailed quantitative studies of the stomach contents of the bird, at different times, are needed in order to work out the food preferences of the bird in different areas, the present information can prove helpful in organizing such studies. A comparison of these studies with the reports of Mirza (1971), regarding Punjab and Sorahio (1981), regarding Sind reveals that *Haloxylon*, *Tribulus* and *Crotalaria* are the preferred food of Houbara, which is consumed everywhere.

Population Levels and Hunting Stress: The partial hunting bag data collected by officials of Baluchistan Forest Department from visiting foreign hunters for Chagai and Kharan districts suggests that the bird is present in high densities in western Baluchistan, specially in certain areas of favourable habitat. Our initial calculations reveal that the wintering Houbara in the area is present around one bird per 3.0 square kilometre. Comparing this figure with the one suggested by Goriup (1981) for Punjab and

Sind, i.e. one bird per 6.25 square kilometre, suggests that this area is richer in Houbara. A detailed population census is required to know exact biological potentials of this population of the bird and to construct certain reliable concentration maps for the area.

The initial information collected from the officials of the forest department, local people and the reputed hunters, present in the area; suggest that population of Houbara, wintering in remote areas of western Baluchistan is also under a tremendous hunting pressure. According to some very conservative estimates the total hunted birds during the year 1981-82 can be any figure between 2,000 to 3,000. The exact effect of this heavy hunting toll on the population is hard to be assessed with the limited information available regarding the population size and population structure; but such a figure sounds too high for the bearable limits of the population wintering in the western Baluchistan.

Breeding: There are certain reports in literature regarding the presence of the breeding activities of the bird in Chagai, Kharan and Makran areas (Ali & Ripley 1969, Roberts & Savage 1971 and Siddiqi 1972). We tried our best for some evidence in favour of occurrence of this activity of the bird in the area, however, we could not find convincing proof of egg laying and nesting in Chagai, Kharan and Nushki areas. During our tour some enthusiastic workers and hunters did report the presence of some very sporadic cases of nesting and breeding in Booto Jungle (a protected reserve forest near Nushki); towards the north of Chagai,

adjacent to Afghanistan border; Yakmuch plains. However, we could not physically ascertain these reports though it was an egg laying season for the bird. In the light of the available information, it seems that the chances of breeding of Houbara in the area are very remote, and even if, at all, occasional breeding occurs in the area, it is a chance occurrence and sparse. The available information on the breeding activities in the coastal areas of Makran are not very conducive (Hamidullah 1982).

It seems that the major support for the belief in the breeding of Houbara in the area mainly emerges from the fact that *C. undulata undulata* (the African race of Houbara) can breed in similar inhospitable hot and arid conditions and that there are high densities of this bird in unapproachable areas of Baluchistan. However, it seems that *C. undulata macqueeni* (the Asian race of Houbara) is adapted to a colder climate and hence it breeds at higher latitudes in USSR or Afghanistan.

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